

APPARATUS AND METHOD FOR GRADIENT MAPPING IN A GRAPHICS  
PROCESSING SYSTEM

ABSTRACT OF THE DISCLOSURE

A method and system for providing surface texture in a graphics image rendered by a graphics processing system. Color values of a pixel having a normal vector normal to a surface in which the pixel is located are calculated based on a perturbed normal vector. The perturbed normal vector is displaced from the normal vector by a displacement equal to the sum of a first vector tangent to the surface at the location of the pixel scaled by a first scale factor and a first displacement value, and a second vector tangent to the surface at the location of the pixel and scaled by a second scale factor and a second displacement value, the second vector perpendicular to the first vector. The displacement values are representative of partial derivatives of a function defining a texture applied to the surface and the scale factors are used to scale the magnitude of the resulting perturbed normal. The color value for the pixel being rendered will be based on the perturbed normal vector instead of the normal vector.